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ABSTRACT

Analysis of two studies related to academic achievement (Atkinson, Lens, and O'Malley, 1976; Entwisle and Hayduk, 1978) and of the effective-schools literature provides a picture that helps us to understand why the ability of poor children is not reflected in their school performance and what schools might do to remedy this situation. The following conclusions can be drawn from the analysis: (1) Poor and low-ability children enter school with too little experience or understanding of the requirements of learning and schooling. (2) Intellectual work is crucial to full realization of mental ability. Since ability is relatively insensitive to school practices, low-ability or low-performing children are essentially dependent on their own work for learning. (3) Work is dependent on motivation for its enactment. Apparently, the most effective school motivation is a belief that school grades are important for later life. This motivation seems to be scarce in poor and low-ability children. (4) A powerful mediating factor in the production of learning is the character of the schools. The more distractions in a school, the less the level of productivity and achievement. With these points in mind, it can be said that the model school will reduce distractions to the minimum, intervene directly to improve the level and efficiency of the child's work effort, and, above all, stress academic motivation (Author/CMG)

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STUDENT ABILITY, STUDENT BACKGROUND, AND STUDENT ACHIEVEMENT: ANOTHER LOOK AT LIFE IN EFFECTIVE SCHOOLS

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Departing slightly from the story line of this conference, I would like to approach the issue of effective schools and student achievement from the socially neutral standpoint of a conditional theory of learning, one that is generally applicable and that provides a model of an ideal context for schooling as well as for learning.[1] The theory will be grounded in both research and conventional experience and will presume to speak to the causes rather than the correlates or products of student achievement. It will be a model by which to judge the likely effects of any school on any child in the production of learning. When I finish I hope to have constructed an uncomplicated theory that will rationalize and explain most of the found effects that the effective-schools literature discovers to be differentially associated with student achievement.[2]

Let me start by attempting to decompose that controversial and, for too long, ineffable variable, student background, perhaps to move us beyond the superficial but popular notion that it only means either privilege or poverty. I do this for two reasons: (1) the twin variables of ability and background invariably emerge as the two most robust determinants of student achievement, and (2) they

[1] I distinguish between learning and schooling in the following way: Learning is what children do with or make of their experience; schooling is what schools do with children by way of providing them with experience, usually in the form of some sort of educational treatment.

[2] By effective-schools literature, I mean all the various studies and reviews that have offered evidence of one or another significant factor in student achievement beyond student ability and background.

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have seldom been examined with an eye to separating the components that are insensitive to school treatment from those that may be directly and efficiently managed in the production of learning.

To gain a better perspective on the components and the behavior that is captured in proxy by the concept of background, I would like to call upon the evidence contained in two recent works. One, by Entwisle and Hayduk (1978), describes the experience and performance of children during the first two years of school and gives special attention to the class and race related differences in the beliefs, behavior, and experience of the children and their parents.[3] The other, by Atkinson, Lens, and O'Malley (1976) describes the relationship between motivation, ability, and work in the production of academic achievement and also gives special attention to the differences in these attributes among children of different social classes. Taken together, the two studies provide a picture that helps us to understand why the ability of poor children is not reflected in their school performance and, by implication, what the schools might do that would allow expression of their apparently suppressed academic variability.

Children's beliefs and school behavior: Origins of unskilled labor

Based on a two-year sample of a projected long-term longitudinal study of two schools, one serving middle-class and one serving working-class children[4] in Baltimore, Maryland, Entwisle and Hayduk provide the following (paraphrased) conclusions:

[3]Although there is a large body of literature on the relationship between student characteristics and learning, especially with regard to poor children, the implications of that information have been largely ignored in the design of schooling or the educational treatment of poor children. One often hears the research dismissed on grounds that it blames the victim or speaks to characteristics that are not susceptible to intervention. Entwisle and Hayduk's research is generally consistent with what has come before it, and avoids the "victim" pitfall by the sophistication and practical consequences of its analysis and interpretation. For this reason, rather than summarize the relevant research, I have chosen to develop an argument based on a particular work, which argument captures the sense of previous work and advances our understanding of both the dynamics of the children's behavior and the appropriate treatments.

[4]Entwisle and Hayduk use the working-class descriptor to connote the occupational status of the parents whose children attend Baltimore's inner-city schools. What is true of the working class in their analysis may be reasonably assumed to be true for lower-class children, probably more so. Indeed, the term *working class* probably con-

1. White middle-class and both Black and White working-class children enter school predicting high achievement in the first grade. All of the children predicted grades that were higher than they typically received, that is, they overpredicted their achievement. Working-class children predicted substantially higher grades than the middle-class children and received substantially lower grades than the middle-class children.
2. Middle-class White parents more accurately predicted their children's performance than working-class parents, whose predictions were substantially lower than those of their children.
3. The grades predicted by White middle-class and working-class parents were closely related to their children's IQs. This relationship was not observed in significant degree for Black working-class parents.
4. Upon predicting second-grade performance, middle-class children correct their estimates in light of their first-grade performance. No matter how poorly (or well) the children of the working class perform with regard to their own expectations, they are unlikely to change their predictions of success the next time around.
5. Working-class children attended a school that, from the standpoint of staff quality and resources, was considered first class, but it graded the children according to their substantive (test) performance, while the middle-class school graded according to the efforts (work habits) of the children.

A reasonable and, in light of the small sample, speculative but heuristic interpretation of these results (for which Entwisle and Hayduk are not responsible) moves along the following lines.

There is a clear distinction between these middle-class and working-class parents in their beliefs and assumptions about intelligence and scholastic performance. Middle-class parents, who were all White, evidently consider and calculate their child's prospects in school as a function of their estimate of the child's IQ. This assessment apparently means that the parents observe their children with an eye to appraising the child's behavior and scholastic interest

notes what is often taken to mean lower class, but in any event the reader can assume that this analysis is probably conservative with regard to the implications for lower-class children.

against their understanding of the requirements of the schooling process. The calculation that produces the estimate takes account of the child's ability to learn things that lie outside the child's "natural experience," for example, the alphabet, and to engage in tasks and behavior consonant with the learning orientation and requirements of schooling. With reduced strength, this association holds for working-class Whites as well.

The Black working-class parents, on the other hand, did not seem to take IQ or its scholastic indications into account in predicting their childrens' performance in school. Thus, upon entry into school, children of the Black working class, like their parents, may not yet have formulated a conception of the rules and requirements of formal intellectual performance. In short, while their aspirations are high, they are uncertain of what they must do to realize them and, after that, how they should do it. One consequence of this missing orientation may be that Black working-class children are less likely to initially grasp the relationship between school work and the quality of their performance. Should this be the case, it does not mean that the working-class children do not, or are not willing to, work, nor that grades are unimportant to them. Rather it implies that, at the outset of schooling, they are not familiar with, do not grasp, and are not directly rewarded for the work that is necessary to achieve the grades they desire. Hence they may either not perform the work in sufficient amount, or they may perform work that is too often irrelevant to the requirements of schooling.

The fact that working-class children do not adjust their expectations as a function of the grades they receive suggests that the connection between their own behavior and their grades is at best only partially made. One imagines that grades might take on something of a mystical quality, appearing on report cards and to be taken seriously, but in the child's mind remaining causally unconnected to anything the child has done to determine them. Since effort per se was not directly rewarded, the connection between work and grades was seldom made; only the substantive failure, which comes to them as a surprise, is experienced and reinforced. Grades, as a result, may take on a random or chance character, with the child feeling helpless to do anything about them. In time, one might expect to see such children work out their own explanations for their low grades; for example, they weren't interested in school, they didn't do the work on purpose, and the like.

Middle-class children, on the other hand, took account of their likely performance in a more realistic manner, apparently deriving their estimates from assimilation of their parents' views of their intelligence and the nature of school work. They seem to have had a better idea of what would be required of them to obtain the grade they predicted and to estimate their likely success in carrying out the work as a function of the ability. They saw the relationship between their own work behavior, how smart they thought they were, and the grades they received. Report cards should be far less often a surprise for middle-class children than for working-class children, because middle-class children know something of the kind and quantity of work that must be done to get the grades, and they have a fairly good notion of how likely they are to be able to perform the tasks that produce the grades. They know, and can anticipate, how well they've done and will do. Even more, in these schools, they were directly rewarded for their work, regardless of its quality. Thus they were "socialized" to school work by being rewarded for behavior that is closely associated with achievement, without at the same time being held responsible for the substantive accomplishment. In a sense, they were held harmless from achievement, while all attention was given to reinforcing the role of work effort in learning.

Finally, all of the foregoing should be understood in the operating context implied by these schools' grading procedures. If Entwisle and Hayduk's schools are in any sense typical of schools in this society, profound lessons may be learned from the simple procedure of differentiating rewards or grades according to level of achievement and level of effort. The magnitude of the concern is reflected in the development of standards of competence, tests of competence, and the like, most of which are aimed at ensuring a minimum level of achievement in all children, but, in fact, have consequences only for those least likely to achieve, namely either lower-class or low-ability children.

Entwisle and Hayduk find that achievement comes first in schools serving working-class and, by implication, lower-class children. Conceivably such schools assume that their primary task is to enlarge or improve the child's reservoir of information and cognitive skills. The position presumably rests on grounds that, upon entry into school, poor children are comparatively deficient in this regard and that strict and substantive criteria of achievement will best serve

to bring them up to acceptable performance. Rewards for work are delivered by indirection through grades, and, since the grades are usually low, so are the rewards or the returns for labor.

Middle-class schools appear to assume that the child enters school with a level of information and cognitive skills sufficient to perform successfully and, hence, will profit most from the development of motivation to work. This position provides operational validity to the teacher's belief (Weiner, 1972, 1974) that level of effort is causally related to achievement and that efforts to impress upon the child that work is important to achievement will best serve the long-run as well as the short-run interests of learning. Thus a "softer" criterion is used in evaluation of performance, but one that should lead the child to conclude that school work is important in the determination of grades and, from that, that work will be important to his or her prospects for success. By this criterion, middle-class children who do poorly, that is, work less than they should, will be reminded of their deficiency with harmless low grades and prompted to remember that they must literally work harder to improve their grades. In any case, the children are given directly reinforced experience with the one aspect of schooling, work, that is both causally related to learning and is also a resource uniquely within their own control.

In this light, working-class schools, by depending on strict criteria of achievement, apparently both discount the child's low ability to successfully engage in the learning process and fail to directly provide a cause-and-effect awareness of the relationship between work and grades. The children seem to have been left to discover for themselves the amount and kind of work required for learning. Little harm might result if their entering behavior was as comparably sophisticated and efficient as that of the middle-class children; their level of achievement might sustain and satisfy their aspirations since their achievement might be as high as their ability and the school's quality together would enable. But without the work sophistication and efficiencies and without the intellectual connection between the kind of work and learning, the rewards will be few and reserved for those children who behave in a manner consistent with the latent determinants of learning, sustained and appropriate effort.

Thus it is that, at least in this case, working-class children who, compared to middle-class children, were least adept at the learning process were nonetheless graded according to the result of that

weakness, while the work procedures that undergird and directly determine acquisition were the sources of rewards for those middle-class children already most proficient.

If children are directly rewarded for their level of effort, they can connect the work to grades, they can recognize that work is to some degree linearly related to the quality of the grades they receive and, less directly, that, if they want to learn, they will have to work. Further, direct rewards for effort, an attribute over which they have personal control, encourage them to look to their own labor as a resource for learning. Since, among the various learning events that take place in school, the amount and efficiency of student work is, with little doubt, the most directly and causally tied to achievement, it follows that rewards for work and their motivational consequences will likely raise the child's sense of responsibility and self-determination, with salutary consequences for self-esteem. From this experience, the child should come to perceive himself or herself in control of the learning situation, able to validly predict his or her own grades, and ultimately able to adopt a self-directed work routine, based on the knowledge and experience accumulated from the results of the labor.

If true, and it is consistent with other evidence (Covington & Omelich, 1979), this analysis has substantial power for predicting the likely level of achievement in settings that require ever greater degrees of valid self-assessment and self-direction, that is, in secondary and higher education. It is worth noting that self-direction is the key value of the middle class, while conformity to authority stands as key for the lower class (Kohn, 1977). The schools serving the two classes of children clearly reflect the value difference in their operational format. In the short run, the difference may be syntonic for achievement, given the characteristics of the two classes of children. However, there seems little doubt that one of the desired ends of education for all children is development of the ability to knowledgeably engage in the behavior that produces learning and to continue that process in settings, notably high schools, universities, and professions, that require self-direction and personal responsibility for work.

Thus, the first aim of school should be to develop a cause-and-effect attribution in working-class and lower-class children between grades and the kind and amount of work that must be expended to get them. Establishing the attribution will require direct instruction

in the role and methods of school work and how to perform it as efficiently as possible, coupled with grades that reflect mastery of the methods and efficiencies of school work as well as the substance.

The second aim of school should be to enable children (and their parents) to make valid assessments of their abilities and to construct a set of expectations that reflects their ability conditioned by the amount of work they may reasonably be expected to perform on behalf of achievement. To fail to do so develops a situation of inevitable failure in those children whose aspirations substantially exceed their working potential, a situation that is highly likely among both low-ability children and children whose ability is suppressed by certain motivational properties that are critical to achievement.

Ability, motivation, and work: Origins of labor-intensive learning

I will turn now to the second source of information for this analysis, that provided by Atkinson and his colleagues in their discussion of the relationship between motivation, work, and ability. As with the Entwisle and Hayduk results, the discussion will be speculative, and, I hope, heuristic.

Atkinson's point is simple: Certain beliefs underlie academic motivation, academic motivation underlies academic work, and academic work underlies academic achievement. In Atkinson's view, ability, in this case intelligence, is a multiplier for work, a "mental" effect or characteristic of the person that provides for greater or lesser returns per unit of school work invested. Interpretively, this means that high-ability children have a high multiplier; their work produces greater gains per unit of labor. They may work less to achieve the same level as a child with a lower multiplier, or they may work more and achieve more than a child that works as hard, but against a lower multiplier. Children with a high multiplier will invariably be those who with hard work will lead their class or, missing the desire to work, will appear to be sailing through school, making decent grades and hardly exerting themselves to do so.

A similar relationship holds for children of midlevel ability, except that the achievement level is reduced proportionally by the lower multiplier. Given sufficient work, midlevel children will sometimes exceed the achievement level of high-ability children who

work very little. But competitive schooling for midlevel children is one of continuous frustration; they always do well enough, but seldom reap the returns to their effort that accompanies a higher multiplier. For midlevel children to persist in competitive academics, the drive must come from somewhere other than the feat of winning. The quality of the drive must be such that it keeps them working despite the absence of competitive recognition.

Low-ability children might be viewed as children with a low multiplier. Compared to children with higher multipliers, their achievement is most closely tied to the amount of labor, the units of work, they invest. In this light, low-ability children face a situation in which they can never compete successfully against children of higher ability who work as hard or harder. They are forever in a position in which their entire academic product is determined by how much work they put in, and, except for those peers who work less than they do, they are forever at a competitive disadvantage no matter how hard they work. They can be understood as children with just enough ability to equal or barely exceed some threshold of academically acceptable performance; they are just able to pass. They can rise above or fall below this minimum standard as a function of how hard they work, but they will always face the fact that, to pass, they will have to work very hard. There is not much to reinforce such effort since virtually all the usual rewards for academic performance go to high-ability children. Competitive schooling for low-ability children is at best sheer drudgery, and one might expect such children to often dismiss it as simply not worth the effort.

Work and motivation

Atkinson's theory and evidence also suggest that the returns to work are not only higher achievement, but, given the relationship between measures of intelligence and exposure to the kind of information they test, higher ability also. That is, as measured, a child's apparent ability will rise as a function of the kind and quantity of information he or she accumulates, which, while perhaps unrelated to "true ability," nonetheless reflects the acquisition of a greater, and academically more functional, ability level. But we have a problem with our assessment of ability, in that we are seldom sure whether a low-scoring child is unmotivated, unable, or mismeasured. If chil-

dren are unable, we can make provisions for them, but, if they are unmotivated or mismeasured, something else is required so that they might express the ability that is latent in their attitude or the wrong score.

Aikinson identifies one belief that is a linchpin of achievement; namely, the degree to which children believe that their grades play a major role in the realization of later life plans. That belief keeps children at work in school and, as a function of true ability, mediates achievement. Without the belief, children perform at a level consistent with ability alone. High-ability children, those who easily absorb instruction, pass easily, but without the distinction that work would bring; midlevel children get C's, but they stay in school and graduate; low-ability children will often fail when, without the belief, they rely exclusively on their ability to get them through. Thus the children most at risk for this missing belief, that is, the work-inducing motivation, are low-ability children whose most effective, perhaps only, resource is their labor.

Keep in mind also that the missing motive reduces every child's achievement, regardless of class or ability. If the motive was weak or missing in a substantial number of children regardless of class, or in a certain class or kind of children regardless of ability, we might easily mistake the shortfall in average achievement as a sign of lower ability in either group of children. Indeed, as matters stand, ability and class effects are so intertwined that we can't tell whether low performance is due to low ability or whether the performance is suppressed by the consequences of the child's conception of school. But the two together seem to make lower class indistinguishable from low ability.

Unskilled work and labor-intensive learning: The source of failure

Since the lower end of acceptable school performance is within reach of virtually everyone, there is little reason to believe that low ability alone could explain such a shortfall in minimum achievement and persistence to graduation as we have seen in many schools. It seems far more likely that the deficit is born of a combination of motivational and work factors that, without any intervention to the contrary, will defeat even the best intentioned low-ability child.

Such children enter school with sufficient ability that, given immediate, considerable, and efficient work effort, they should be able to produce at least to a level sufficient to pass them successfully through the school. But in not making the connection between grades and the future and in not knowing the rules of operation that govern academic achievement, they are unable to act in a fashion that, had they known what to do, would have found them maintaining steady, even if unspectacular, progress. They fail, not because of intellectual deficiencies, but through the effects of the missing perspective and consequent decrement and inefficiencies in labor. As they fail, their aspirations are lost and they come to believe that they are doing all they can to get ahead, but it's not enough and it certainly isn't producing any rewards. They seldom experience academic success, since their academic work, kept inefficient by the missing sophistication and know-how with regard to intellectual work, is insufficient to turn their aspirations into achievement. The end is an experience of hopeless inadequacy, often replaced by hostility growing out of continued exposure to a situation that demands a product they cannot deliver, no matter how badly they might want to and, sometimes, no matter how hard they try.

Few children enter school with much sophistication about school work, and only with considerable experience do they learn how to achieve some efficiencies in their work effort. Most never become efficient workers; they are seldom deliberately taught to be by the schools or by their parents, and hence most never manage to extract the maximum amount of learning from the work they do undertake. As a consequence, the production capacity of most children is never reached, perhaps even less now than in previous years. The loss to society is unknown, but doubtless of some magnitude if we believe the various indicators of achievement. For poor and low-ability children it can be disastrous. Not only are they the most at risk, but also, from the evidence, the least likely to receive either direct or indirect rewards for the effort they expend, much less instruction in how to get the most from their labor.

Summing up, background translates into the following effects that are directly related to achievement and explain why background is apparently so robust in determining school performance:

1. Among parents, there is class-related differential sophistication about matters of academic life, the behavior required to benefit

from school, and the orientation to intellectual or mental tasks and behavior.

2. Among parents and children, there is differential knowledge and beliefs about the relationship of school to later life. For the poor only a tenuous connection is made between school and life, and the motivational properties that accrue to that belief and produce the work necessary for achievement are lightly held.
3. Among children, there is variable ability, effort, and efficiency in carrying out the tasks of schooling. Because of the low multiplier, work is crucial to the success of low-ability children. The amount and quality or efficiency of the work substitutes for a higher multiplier and directly determines the achievement level of the child.

If the missing work sophistication and motivation were supplied, even belatedly, there would be reason to expect a positive change in performance of lower-class children, one that at least, or at last, was a direct function of the child's true ability. As it is, low or average ability is too weak to overcome the restraints imposed on its expression by the missing motivation, inappropriate or inefficient work skills, and tangential assumptions about the requirements of learning. Since most children have low or average ability, it is not surprising that average achievement for poor children is low; only those of high ability among the poor can break out, and their performance is probably itself less than it should or could be.

Before recommending some procedures to cope with this situation, I would like to carry this analysis into an interpretation of the effective-schools research.

Effective schools: What is working?

Schools are established and conducted to elicit behavior that is believed to promote, or at least be consistent with, the acquisition of knowledge. The knowledge itself, being largely academic, may have little relationship to the immediate or past experience of many children and only unclear implications for their future. Withal, the accumulation of that knowledge, called learning, is facilitated by certain characteristics of the children, among them:

1. ability: the ease with which instruction can be absorbed, recalled, and sometimes generalized;

2. instrumental orientation: the belief that information of the kind instructed is a personally valuable possession and can be used to gain a desired outcome; and
3. motivation: a desire to learn, expressed as systematic work of a kind calculated to promote mental retention of the material of instruction.

The accumulation of this knowledge is also facilitated by a certain kind of context or medium in which it is delivered. This context might be understood as providing the conditions for learning, conditions that, if present in optimum degree, will permit a child to learn as much as ability, orientation, and work will permit. These conditions include the following:

1. a stable environment, a school, as free as possible from distractions that interfere with the learning task;
2. a body of information, a curriculum, organized in a form suited to study and acquisition; and
3. a method by which the information may be systematically taught.

Like student ability and work, these conditions can interact in the production of learning. The optimum is achieved when each condition is executed according to our best available means and design. Reductions from the optimum of any of these conditions will reduce student achievement; most schools are operating on a suboptimum standard.

For example, consider the effect of environment. For learning to occur, the child must be in an environment that promotes or is consistent with attention to the task of learning. Operationally, this means that any distraction of the children's attention, anything that diverts their energy to activities or interests other than learning, anything that reduces the efficiency and amount of their work effort, will reduce achievement of the kind the curriculum and instruction intends. To learn efficiently, children must attend to the experience to be mastered.

If children cannot, or will not, pay attention, they will not be able to receive the intended information or experience, however well presented, and, without that fundamental condition, they will not be able to engage in productive work on behalf of mastery. Thus schools might be assessed for effectiveness from the standpoint of the

degree to which they are able to provide the conditions that satisfy the basic production requirements of learning. For example, we can count the number of effects that occur in schools that reduce the amount and efficiency of a child's work. Among others, we could include the following disruptions to students' attention and the amount and efficiency of their work:

1. disorganized or inefficiently managed classrooms (Kounin, 1970);
2. student and teacher absenteeism (Wiley & Harnischfeger, 1974; Summers & Wolfe, 1977);
3. fights and unruly behavior in the classroom (Rutter, Maughan, Mortimore, & Ouston, 1979; Summers & Wolfe, 1977);
4. strikes and arguments among and between staff, "downtown," and school boards (presumptive but plausible);
5. incompetent instruction (by definition);
6. fewer or shortened school days (Wiley, 1976);
7. leaving class for remedial work, that is, "pull out" (Glass & Smith, 1977); and
8. the first day of spring (law of nature).

The list could go on indefinitely. There is no end to events and procedures that may distract children from their work or render their effort inefficient. Many intrusions are born of the exigencies of life and law; some can be prevented but many cannot, and some, for example, rest periods, may even facilitate learning. But in the strict sense, any such distraction can be counted upon to reduce, by some fraction, the amount and quality of time available for learning, regardless of ability or motivation to do well. The quality of performance, the degree to which children may bring to bear their personal resources on learning, is determined in large part by the degree to which the school is able to provide them with the context that permits undistracted attention to the stuff of learning. Whatever that stuff may be, whether esthetics or essays, arithmetic or athletics, all of it is dependent on the stability and tranquility or, if you will, the rate of distraction that directly and indirectly reduces both the power of instruction and the power of ability and effort.

On the other hand, certain characteristics of schools facilitate learning by promoting conditions congenial to the work of learning.

Among them:

1. consensus among the school staff on their purpose and goals in schooling (Weber, 1971; Brookover, Beady, Flood, Schweitzer, & Wisenbaker, 1979);
2. activity or classroom management designed to minimize unproductive time and behavior (Sowell, 1976; Rutter et al., 1979; Kounin, 1970; New York State Education Department, 1974);
3. activity or classroom management designed to develop and use the reinforcing effects of both peer pressure and peer support (Bossert, 1979; Rutter et al., 1979);
4. principals who are looked up to and admired, or at least respected, and who appear in the classroom and lend their authority to the teacher's instructional purpose (Brookover et al., 1979; Kean, Summers, Raivetz, & Farber, 1979; Maryland State Department of Education, 1978; Sowell, 1976; Spartz, Valdes, McCormick, Meyers, & Geppert, 1977; Weber, 1971); and
5. teacher's aides or parents who, through their presence in the classroom, lend their influence to that of the teacher on behalf of reinforcing, enforcing, or merely keeping the children on task and their attention to work (Armor, Conry-Oseguera, Cox, King, McDonnell, Pascal, Pauly, & Zellman, 1976; Brookover et al., 1979; Maryland State Department of Education, 1978).

Implicit in this list is an underlying variable common to each that explains the associations with student achievement that we attribute to some characteristic of the school; most are indicators, direct or implied, of the amount and efficiency of student time and work that can be given to learning.

Viewed from this perspective, schools that intend to raise academic achievement either reduce distractions to learning by eliminating the events or behavior that take the child's attention or energies away from the task, or they are constructed and managed in such a way as to provide the climate necessary to realize the returns that accompany undistracted work. An atmosphere of minimum distraction is essential if motivation and efficient work are to receive optimum consideration in learning. Student achievement will be raised when all counter-learning distractions, except those judged more important than achievement or beyond control of the school, are removed from the child's experience. Short of this goal, we may

expect achievement to be reduced in proportion to the number and severity of the disruptions.

Improving the capability of a school to produce appropriately motivated and efficient work in its students is undoubtedly the single most powerful treatment we could devise to raise both the level of achievement and functional ability of the child. Teacher quality and curriculum content may perfect the experience for optimum schools, but neither has the causal and direct impact on student productivity that comes from the student's own motivated hard work. The point, though often obscured, has not been lost on certain schools. Of the schools we have discovered to be unusually effective, most may be characterized as follows:

1. Effective schools reduce the avenues for discretionary and academically unproductive behavior in students. (Armor et al., 1976; Brophy & Evertson, 1976)
2. They focus the energies of students on school work through the use of teacher's aides, tight-ship management, raising the morale of teachers, and the like. (Sowell, 1976; Spartz et al., 1977)
3. They improve the efficiency of work by introducing better or more narrowly organized material and instruction, as with basal learning curriculum, direct instruction, smaller classrooms. (Armor et al., 1976; Good, 1979; Kean et al., 1979; Kounin, 1970; New York State Education Department, 1974; Slavin, 1977)
4. They establish the legitimacy of schooling or introduce fear of failure as a motive in situations that find the students without their own notions of the worth or desirability of schooling. (Cooke, 1980; Schain, 1980)
5. They intensify work per unit of time, that is, require more and make the children work harder without extending the length of schooling or the school day. (Keisling, 1978; Spartz et al., 1977; Stallings & Kaskowitz, 1974)
6. They reduce distractions to learning and work by imposing discipline, rules, and other schoolwide shared sanctions. (Rutter et al., 1979; Sowell, 1976)
7. They develop a critical mass of achievement-oriented students, who set a standard of performance for all, and thereby encourage

collective attention and work on behalf of meeting their example. (Henderson, Mieszkowski, & Sauvageau, 1976; Kean et al., 1979; Rutter et al., 1979; Summers & Wolfe, 1977; Winkler, 1975)

Not all these methods have proved equally productive, as the effective-schools literature tells us, but they are all consistent with the goal of keeping children on task and making their work effort as productive as it can be. Effective schools may do little else, but it may be all they need to do to satisfy the minimum conditions for learning.

Teaching children how to persist and produce by teaching them how to go to school and what they must do to extract sufficient rewards to support and justify persistence is not trivial. The recent review of Head Start programs (Lazar & Darlington, 1979) indicates that the effects of such programs translate into an increased likelihood that poor children will perform sufficiently well to pass; not that they become geniuses or raise their IQs 30 points, but that they are less likely to be assigned to special classes and more likely to be promoted. My interpretation of this data is that the children learn how to go to school, and, of itself, by orienting the children, the experience is enough to enable them to more efficiently utilize work on behalf of achievement. The product of this labor is passing, the motivational consequence is persistence, and the payoff is graduation.

But we could be doing much more to enable students, especially poor children, to capitalize on their own resources. For example, persistence can be taught to many low-achieving children simply by making them aware of the relationship between effort and achievement and supplying appropriate experience (Andrews & Debus, 1978; Dweck, 1975). It is, after all, the student who learns, and it is what students give to the enterprise of their energy and attention that will determine how much they retain of whatever is provided to them. For less than mysterious reasons, we have been at pains to avoid treating students as the locus of production, substituting in its place various characteristics of schools, teachers, and curricula. In so doing we have spent much time and money on indirect treatments, experiences to which the children are exposed, all aimed to improve their performance. The evidence on the returns for these efforts—as seen, for example, in the effective-schools research—suggests only modest and sometimes unexplainable correlations with

student achievement. These effects may all be understood as weak or indirect influences on the amount and efficiency of the child's work effort. In short, the evidence indicates nothing so much as a failure to find a treatment that would raise ability or improve the efficiency of work without any modification of the child's behavior. In this light, we have found that treatments and innovations cannot enhance or substitute for ability and work except to a marginal degree and that our aspirations for equity may require working directly with the children to improve their methods of acquisition. Given equal skills in the process of learning, we might also expect better results in the acquisition of substance.

With this in mind, let me review the conclusions that can be drawn from this analysis:

1. Poor and low-ability children enter school with too little experience or understanding of the requirements of learning and schooling. They often have little idea of the connection between intellectual work and school performance, or the kind or amount of work necessary to learn the lessons of school.
2. Intellectual work is crucial to full realization of mental ability. Children of any ability will fail to realize their achievement potential if they work at suboptimum levels. Since ability is relatively insensitive to school practices, low-ability or low-performing children are essentially dependent on their own work for learning. Since we have not yet invented a machine or a method that substitutes for ability, true or functional, we will have to direct our attention to work, a more sensitive source of production.
3. Work is dependent on motivation for its enactment. The best-known effective school motivation is a belief that school grades are important for later life. It is a motive that seems to be scarce in poor and low-ability children. Others might substitute, for example, fear, and some have been tried, for example, relevance, but their power is slight and often not in accord with democratic ideals.
4. A powerful mediating factor in the production of learning is the character of the schools. Schools in which children are distracted from their work, by definition, undercut their productivity and achievement. Schools that focus the child's attention and effort to

the task of learning encourage achievement according to the child's ability and effort. In an optimum setting, children will perform as well as possible within the limits of their own ability and enterprise, and the level of achievement in such a context will doubtless be responsive to the quality of the imposed learning experience. Without these conditions, however, little of the conventional notions of quality, for example, experienced teachers, will have sufficient power to overcome the distractions to work.

Recommendations

Extraneous distractions that degrade the conditions of learning should be reduced to a minumum. A balance will have to be struck between the requirements of learning and the benefits of personal and public discretion, because if achievement is the first order of business, there is little room for behavior or policies that are antagonistic to learning. Careful consideration should be given to the social priorities of school. If student achievement is determined to head the list, the many distractions to learning that beset, or are generated by, public schools and are at cross-purposes with achievement will want review with an eye to keeping or tolerating only those necessary to the realization of goals society holds to be more important than schooling. Of those left, we will also want to reconcile them with the conditions of learning so that, for once, we can obtain a better society and still make it possible for children to learn the skills necessary for a productive and self-sufficient adult life.

Direct intervention is needed to improve the level and efficiency of the child's work effort. We must enable children to get as much out of their labor as possible by improving study habits, coupled with a syntonic purpose and intention for the organization of information, planning and management, instructional procedures, and the like. All children can benefit from a systematic orientation to the task of schooling combined with instruction in how to learn. Few schools treat learning as a task that can be mastered more efficiently if approached with certain skills and methods of study. The lessons of "test wiseness" and the flap over the coachability of the SAT ought to tell us that unsophisticated work is incompatible with optimum achievement. Knowing what to do and how to do it most efficiently are crucial to the full expression of ability. It is a skill that can be

taught to poor and low-ability children by the schools; it is not an inherent consequence of privilege or a *fait accompli* of poverty, unless we do nothing to change it. Learning how to learn is as important, more perhaps, than learning itself; we get very little of the latter without a great deal of the former.

This is not a reactionary point, nor is it merely an affirmation of the Protestant ethic. Compatible and efficient work style and method are left to develop by chance in most schools, and some students, typically the middle class, seem better at it than others. Middle-class children may have the same advantage in this arena as they do with standardized tests. Children with high-ability or high social-class multipliers can get away with less work, efficient or not, than children with low-ability or low social-class multipliers, and they always have their parents to teach or coach them. Children with low multipliers, more than any others, must make the most of their time and work, and we could help them do so with little cost and great profit.

Direct intervention is needed to provide the child with the necessary sophistication about the process of school—for example, the connection between work and grades—and the behavior necessary to effectively extract the information available—for example, motivated attention and effort. Head Start is an example of current policy and programs that, at least weakly and indirectly, provide this experience.

Finally, academic motivation is the key and probably determines the impact of schooling more than any other single variable. The belief that school matters is at once a necessary and probably sufficient condition for learning, but beyond belief for many poor and minority children. Folklore, politicians, and experience combine to defeat the motive for poor children, and we have not yet found an effective alternative. Thus we find Black and other minority children whipsawed between their parents and teachers, who exhort them to learn and succeed through education, and the voices of expedience, peers and politicians, who say there is no future and little has changed.

It profits poor children little to say that until society changes there is no justification for them to believe that school is important. Defeating the motive to learn in this manner is a devastating variation on the self-fulfilling prophecy. The truth is that, without school, without graduation, there is no hope in a world in which most of

one's competitors have graduated. A method or a message must be found that will convince poor children that school is worth it and that their future depends on it. With appropriate motivation, who knows what range and level of ability may emerge? Without it, the prospects for achievement in a conventional setting are as grim as the data imply.

References

Andrews, G. R., & Debus, R. L. Persistence and the causal perception of failure: Modifying cognitive attributions. *Journal of Educational Psychology*, 1978, *70*, 154-166.

Atkinson, J., Lens, W., & O'Malley, P. Motivation and ability: Interactive psychological determinants of intellective performance, educational achievement, and each other. In W. Sewell, R. Hauser, & D. Featherman (Eds.), *Schooling and achievement in American Society*. New York: Academic Press, 1976.

Armor, D., Conry-Oseguera, P., Cox, M., King, N., McDonnell, L., Pascal, A., Pauly, E., & Zellman, G. *Analysis of the school preferred reading program in selected Los Angeles minority schools*. Santa Monica: The Rand Corporation, 1976.

Bossert, S. T. *Tasks and social relationships in classrooms: A study of classroom organization and its consequences*. ASA Arnold and Caroline Rose Monograph Series. New York: Cambridge University Press, 1979.

Brookover, W., Beady, C., Flood, P., Schweitzer, J., & Wisenbaker, J. *School social systems and student achievement: Schools can make a difference*. New York: Praeger Publishers, 1979.

Brophy, J., & Evertson, C. *Learning from teaching: A developmental perspective*. Boston: Allyn and Bacon, 1976.

Coleman, J. S., et al. *Equality of educational opportunity*. Washington, DC: U.S. Government Printing Office, 1966.

Cooke, J. Marva Collins—Wiz Teacher. *Washington Post*, May 8, 1980, DC2.

Covington, M. V., & Omelich, C. L. Effort: The double-edged sword in school achievement. *Journal of Educational Psychology*, 1979, *71* (2), 169-182.

Dweck, C. S. The role of expectations and attributions in the alleviation of learned helplessness. *Journal of Personality and Social Psychology*, 1975, *31*, 674-685.

Entwisle, D. R. & Hayduk, L. A. *Too great expectations: The academic outlook of young children*. Baltimore: Johns Hopkins University Press, 1978.

Glass, G. V., & Smith, M. L. *"Pull out" in compensatory education*. Laboratory of Educational Research, University of Colorado, 1977.

Good, T. L. Teacher effectiveness in the elementary school. *Journal of Teacher Education*, 1979, *30*, 52-64.

Henderson, V., Mieszkowski, P., & Sauvageau, Y. *Peer group effects and educational production functions*. Ottawa: Economic Council of Canada, 1976.

Kean, M. H., Summers, A. A., Raivetz, M. S., & Farber, I. J. *"What Works in Reading?"* Office of Research and Evaluation, The School District of Philadelphia, 1979.

Kiesling, H. Productivity of instructional time by mode of instruction for students at varying levels of reading skill. *Reading Research Quarterly*, 1978, *13*, 554-582.

Kohn, M. *Class and conformity*. Chicago: University of Chicago Press, 1977.

Kounin, J. *Discipline and group management in classrooms*. New York: Holt, Rinehart and Winston, 1970.

Lazar, I. & Darlington, R. *Lasting effects after preschool*. DHEW publication No. (OHDS) 79-30179., 1979.

Maryland State Department of Education. *Process evaluation: A comprehensive study of outliers*. College Park, Md.: University of Maryland, 1978.

New York State Education Department. Reading achievement related to educational and environmental conditions in 12 New York City elementary schools. Albany, New York, 1974.

Rutter, M., Maughan, B., Mortimore, P., & Ouston, J. *Fifteen thousand hours*. Cambridge, Mass.: Harvard University Press, 1979.

Schain, R. L. Motivating students in urban schools. In *Urban education in the 80s: The never ending challenge*. Reston, Va.: National Association of Secondary School Principals, 1980.

Slavin, R. E. Classroom reward structure: An analytical and practical review. *Review of Educational Research*, 1977, *47*, 633-650.

Sowell, T. Patterns of Black excellence. *The Public Interest*, 1976, *43*, 26-58.

Spartz, J. L., Valdes, A. L., McCormick, W. J., Myers, J., & Geppert, W. J. *Delaware educational accountability system case studies: Elementary schools grades 1-4*. Delaware Department of Public Instruction, 1977.

Stallings, J. A., & Kaskowitz, D. *Follow through classroom observation evaluation 1972-1973*. Menlo Park, Calif.: Stanford Research Institute, 1974.

Summers, A., & Wolfe, B. Do schools make a difference? *American Economic Review*, 1977, *67*, 639-652.

Weber, G. *Inner-city children can be taught to read: Four successful schools*. (Occasional Paper No. 18). Washington, D.C.: Council for Basic Education, 1971.

Weiner, B. *Theories of motivation: From mechanism to cognition*. Chicago: Markham, 1972.

Weiner, B. *Achievement motivation and attribution theory*. Morristown, N.J.: General Learning Press, 1974.

Wiley, D. Another hour another day: Quantity of schooling, a potent path for policy. In W. Sewell, R. Hauser, & D. Featherman (Eds.), *Schooling and achievement in American society*. New York: Academic Press, 1976.

Wiley, D., & Harnischfeger, A. Explosion of a myth: Quantity of schooling and exposure to instruction, major educational vehicles. *Educational Researcher*, 1974, *4*, 7-12.

Winkler, D. R. Educational achievement and school peer group composition. *Journal of Human Resources*, 1975, *10*, 189-204.